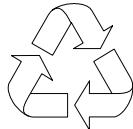


Power SP Service Guide

Service guide files and updates are available
on the AIPG/CSD web; for more information,
please refer to <http://csd.acer.com.tw>



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P/N: VD.PSPVF.001

Revision History

Please refer to the table below for the updates made on Acer Power SP service guide.

Date	Chapter	Updates

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Conventions

The following conventions are used in this manual:

Screen messages	Denotes actual messages that appear on screen.
NOTE	Gives bits and pieces of additional information related to the current topic.
WARNING	Alerts you to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Reminds you to do specific actions relevant to the accomplishment of procedures.

Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the **BASIC CONFIGURATION** decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office **MAY** have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These **LOCALIZED FEATURES** will **NOT** be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.
2. Please note **WHEN ORDERING FRU PARTS**, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For **ACER-AUTHORIZED SERVICE PROVIDERS**, your Acer office may have a **DIFFERENT** part number code to those given in the FRU list of this printed Service Guide. You **MUST** use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

System Specifications

Overview

Acer Power SP supports Intel Pentium 4 Northwood based micro-ATX, IBM PC/AT compatible system with PCI/AGP bus.

NOTE: CPU frequency: up to 2.6GHz.

Features & Specifications

CPU

- Intel Pentium 4 Willamette/Northwood, Celeron
- Front Side Bus: 400MHz
- Frequency: up to 2.6GHz

Chipset

- Brookdale-GL
- ICH: Intel ICH4.
- SST 49LF002 FWH (2MB)

Memory

- Two DIMM sockets
- DDR 200/266
- Capacity: 128MB ~ 1GB (please refer to the AVL list for compatibility).

BIOS

- Winbond 49V002FAP FWH (2MB)
- Award BIOS code
- ACPI supported, default S3

Super I/O

- Winbond W83627HF LPC super I/O with Hardware monitor supported

RTC

- ICH4

IDE

- Dual PCI Bus master enhanced IDE
- Ultra DMA 33/66/100 supported

FDD

- 1.44/2.88 MB FDD

Graphics

- On-die VGA

Audio

- On-board (RealTek ALC201A AC'97 CODEC)

LAN

- RealTek RTL8100BL integrated LAN with support WOL

USB

- USB 2.0 Host Controller

Expansion slots

- 3 PCI slot (PCI 2.2)

Board size

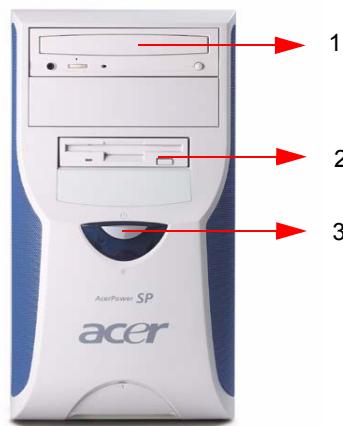
- Micro-ATX, 4 Layers

Industrial Standard

- Windows Hardware Compatibility Labs
- ACPI 1.0b
- PCI 2.2
- PC2001 compliance
- Wired for Management 2.0
- Suspend to RAM

Front Panel

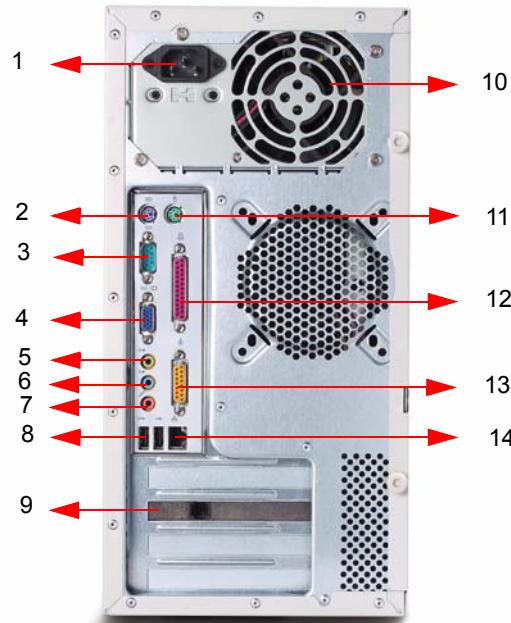
The computer's front panel consists of the following:



Label	Description
1	Optical Drive'
2	Floppy Drive
3	Power Button
4	USB Ports
5	Microphone Jack
6	Speaker/Headphone Jack

Rear Panel

The computer's rear panel consists of the following:



Label	Description
1	Power cord socket
2	PS/2 keyboard port
3	Serial connector
4	Monitor connector
5	Headphone jack
6	Speaker Jack
7	Microphone Jack
8	USB Connector
9	PCI card slot
10	Fan aperture
11	PS/2 mouse connector
12	Printer connector
13	Game/MIDI port
14	RJ-45 ethernet connector

Hardware Specifications and Configurations

Processor

Item	Specification
Type	Pentium 4
Socket	478
Speed	1.8G~2.6G+
Minimum operating speed	0 MHz (If Stop CPU Clock in Sleep State in BIOS Setup is set to Enabled .)
Voltage	Processor voltage can be detected by the system without setting any jumper.

BIOS

Item	Specification
BIOS code programmer	Award
BIOS version	v6.0
BIOS ROM type	Flash ROM
BIOS ROM size	2MB
BIOS ROM package	32-pin DIP package
Support protocol	PCI 2.2, APM1.2, DMI 2.00.1, E-IDE, ACPI 1.0, ESCD 1.03, ANSI ATA 3.0, PnP 1a, Bootable CD-ROM 1.0, ATAPI
Boot from CD-ROM feature	Yes
Support to LS-120 drive	No
Support to BIOS boot block feature	No

NOTE: The BIOS can be overwritten/upgraded by using the flash utility.

BIOS Hotkey List

Hotkey	Function	Description
 [DEL]	Enter BIOS Setup Utility	Press while the system is booting to enter BIOS Setup Utility.

This section has two table lists, system memory specification and the possible combinations of memory module.

System Memory

Item	Specification
Memory socket number	2 sockets (4 banks)
Support memory size per socket	64MB / 128MB / 256MB/ 512MB
Support maximum memory size	1G x2
Support memory type	DDR SDRAM
Support memory speed	266MHz (PC2001)
Support memory voltage	2.5 V
Support memory module package	184-pin DIMM
Support to parity check feature	Yes
Support to Error Correction Code (ECC) feature	Yes
Memory module combinations	You can install memory modules in any combination as long as they match the above specifications.

Memory Combinations

Slot	Memory Module	Total Memory
Slot 1	64, 128, 256, 512MB, 1G	64MB~1G
Slot 2	64, 128, 256, 512MB, 1G	64MB~1G
Maximum System Memory Supported		64MB~2G

Cache Memory

Item	Specification
First-Level Cache Configurations	
Cache function control	Enable/Disable by BIOS Setup
Second-Level Cache Configurations	
L2 Cache RAM type	PBSRAM
L2 Cache RAM size	256-KB
L2 Cache RAM speed	One-half the processor core clock frequency
L2 Cache RAM voltage	
L2 Cache function control	Enable/Disable by BIOS Setup
L2 Cache scheme	Fixed in write-back

Video Memory

Item	Specification
Memory size	8 MB or above

This section has two table lists, the video interface specification and its supported display modes.

Video Interface

Item	Specification
Video controller	Intel 845GE
Video controller resident bus	AGP bus

Video Interface

Item	Specification
Video interface support	Video YUV texture in all texture formats H/W DVD accelerator

Display Screen Resolution	Refresh Rate (Hz)	Hor. Scan (KHz)	Pixel Clock (MHz)
640x480	60	31.5	25.2
640x480	72	37.4	32.0
640x480	75	37.5	31.5
640x480	85	43.3	36.0
640x480	120	63.7	55.0
800x600	56	35.2	36.0
800x600	60	37.8	39.9
800x600	72	48.0	50.0
800x600	75	46.9	49.5
800x600	85	53.7	56.2
800x600	100	62.5	67.5
800x600	120	76.1	81.0
800x600	160	101.9	110.0
1024x768	70	56.5	75.0
1024x768	75	60.0	78.8
1024x768	100	79.0	110.0
1280x1024	43	50.0	80.0
1280x1024	60	64.0	110.0
1280x1024	85	91.2	157.5
1600x1200	60	76.2	156.0
1600x1200	85	106.2	229.5

Audio Interface

Item	Specification
Audio controller	ICH4
Audio controller resident bus	AC'97
Audio function control	Enable/disable by BIOS Setup
Mono or stereo	Stereo
Resolution	20 bits
Compatibility	Sound Blaster Pro/16 compatible Mixed digital and analog high performance chip Enhanced stereo full duplex operation High performance audio accelerator and AC'97 support Full native DOS games compatibility Virtual FM enhances audio experience through real-time FM-to-Wavetable conversion MPU-401(UART mode) interface for wavetable synthesizers and MIDI devices Integrated dual game port Meets AC'97 and WHQL specifications
Music synthesizer	Yes, internal FM synthesizer

Audio Interface

Item	Specification
Sampling rate	48 KHz (max.)
MPU-401 UART support	Yes
Microphone jack	Supported
Headphone jack	Supported

IDE Interface

Item	Specification
IDE controller	Intel ICH4
IDE controller resident bus	PCI bus
Number of IDE channel	2
Support IDE interface	E-IDE (up to PIO mode-4 and Ultra DMA 33/66), ANSI ATA rev.3.0 ATAPI
Support bootable CD-ROM	Yes

Floppy disk drive Interface

Item	Specification
Floppy disk drive controller	Intel ICH4
Floppy disk drive controller resident bus	ISA bus
Support FDD format	360KB, 720KB, 1.2MB, 1.44MB, 2.88MB

Parallel Port

Item	Specification
Parallel port controller	Intel ICH4
Parallel port controller resident bus	ISA bus
Number of parallel ports	1
Support ECP/EPP	SPP / Bi-directional / ECP / EPP
Connector type	25-pin D-type female connector
Parallel port function control	Enable/disable by BIOS Setup
Optional ECP DMA channel (in BIOS Setup)	DMA channel 1 DMA channel 3
Optional parallel port I/O address (via BIOS Setup)	378h 278h
Optional parallel port IRQ (via BIOS Setup)	IRQ5 IRQ7

Serial Port

Item	Specification
Serial port controller	Intel ICH4
Serial port controller resident bus	ISA bus
Number of serial port	2
16550 UART support	Yes
Connector type	9-pin D-type female connector
Optional serial port I/O address (via BIOS Setup)	COM1: 2F8h, 3E8h, 2E8h COM2: 3E8h, 3F8h, 2F8h

Serial Port

Item	Specification
Optional serial port IRQ (via BIOS Setup)	COM1: IRQ 3, and 4 COM2: IRQ 4, and 3

Modem

Item	Specification
Fax modem data baud rate (bps)	V.17 12K/1.44K
Data modem data baud rate (bps)	V.90 32K to 56K (received only)
Voice modem	V.253
Modem connector type	RJ11
Full duplex	Yes

USB Port

Item	Specification
Universal HCI	USB 2.0
USB Class	Support legacy keyboard for legacy mode

Memory Address Map

Address	Size	Function
000000 - 07FFFF	512KBytes	Host Memory
080000 - 09FFFF	128KBytes	Host/PCI Memory
0A0000 - 0BFFFF	128KBytes	PCI/ISA Video Buffer Memory
0C0000 - 0C7FFF	32KBytes	Video BIOS Memory
0C8000 - 0DFFFF	96Kbytes	ISA Card BIOS & Buffer Memory
0E0000 - 0EFFFF	64Kbytes	BIOS Extension Memory Setup and Post Memory PCI Development BIOS
0F0000 - OFFFFF	64Kbytes	System BIOS Memory
100000 - UPPER LIMIT		Main Memory
UPPER LIMIT - 4GBytes		PCI Memory

PCI INTx# and IDSEL Assignment Map

PCI INTx #	PCI Devices	Device IDSEL: ADxx
INTA#	ADIMM-slot	N
INTB#	PCI-Slot1	AD20
INTC#	PCI-Slot2	AD22
INTD#	PCI-Slot3	AD24

PCI Slot IRQ Routing Map

PCI INTx#	INTA	INTB	INTC	INTD	Bus Mastering
PCI slot 1	Route 4	Route 1	Route 2	Route 3	Enabled
PCI slot 2	Route 3	Route 4	Route 1	Route 2	Enabled
PCI slot 3	Route 2	Route 3	Route 4	Route 1	Enabled

I/O Address Map

Hex Range	Devices
000-01F	DMA Controller-1
020-021	Interrupt Controller-1
040-043	System Timer
060-060	Keyboard Controller 8742
061-061	System Speaker
070-071	CMOS RAM Address and Real Time Clock
080-08F	DMA Page Register
0A0-0A1	Interrupt Controller-2
0C0-0DF	DMA Controller-2
0F0-0FF	Math Co-Processor
170-177	Secondary IDE
1F0-1F7	Primary IDE
278-27F	Parallel Printer Port 2
2F8-2FF	Serial Asynchronous Port 2
378-37F	Parallel Printer Port 1
3F0-3F5	Floppy Disk Controller
3F6-3F6	Secondary IDE
3F7-3F7	Primary IDE
3F8-3FF	Serial Asynchronous Port 1
0CF8	Configuration Address Register
0CFC	Configuration Data Register
778-77A	Parallel Printer Port 1

IRQ Assignment Map

IRQx	System Devices	Add-On-Card Devices
IRQ0	Timer	N
IRQ1	Keyboard	N
IRQ2	Cascade Interrupt Control	N
IRQ3	Serial Alternate	Reserved
IRQ4	Serial Primary	Reserved
IRQ5	MPU-401(Alternate)	Reserved
IRQ6	Floppy Disk	Reserved
IRQ7	Parallel Port	Reserved
IRQ8	Real Time Clock	N
IRQ9	N	Reserved
IRQ10	N	Reserved
IRQ11	N	Reserved
IRQ12	PS/2 Mouse	Reserved
IRQ13	Math Coprocessor Exception	N
IRQ14	Primary IDE	Reserved
IRQ15	Secondary IDE	Reserved

NOTE: N - Not be used

DRQ Assignment Map

DRQx	System Devices	Add-On-Card Devices
DRQ0	N	Reserved
DRQ1	N	Reserved
DRQ2	FDD	N
DRQ3	N	Reserved
DRQ4	Cascade	N
DRQ5	N	Reserved
DRQ6	N	Reserved
DRQ7	N	Reserved

NOTE: N - Not be used

Main Board Major Chips

Item	Controller
System core logic	Intel 845GE/ICH4
Video controller	Intel 845GE
Super I/O controller	LPC47M192
Audio controller	Intel 845GE
LAN controller	Intel 845GE
HDD controller	Built in ICH4
Keyboard controller	Built in ICH4
RTC	Built in ICH4

Environmental Requirements

Item	Specifications
Temperature	
Operating	+5 ~ +35°C
Non-operating	-20 ~ +60°C (Storage package)
Humidity	
Operating	15% to 80% RH
Non-operating	20% to 90% RH
Vibration	
Operating (unpacked)	5-500Hz, 2.20G
Non-operating (packed)	5-500Hz, 1.09G

Mechanical Specifications

Item	Specification
Weight One 3 1/2 FDD and one 3.5 HDD (without packing)	Varied by local configuration
Dimensions (main footprint)	N/A

Switching Power Supply 200W

Input Frequency	Frequency Variation Range
50MHz	47MHz to 53MHz
60MHz	57MHz to 63MHz

Input Voltage	Variation Range
100 - 120 VRMS	90 - 132 VRMS
200 - 240 VRMS	180 - 264 VRMS

Input Current	Measuring Range
4A	90 -132 VRMS
2A	180 - 264 VRMS

NOTE: Measure at line input 90 VRMS and maximum load condition.

Output Requirements	Regulation	Current Rating
+5V	+5%	15A
+12V	+5%	3A
-12V	+10%	0.3A
+3.3V	+4%	12A
+5Vaux	+5%	3A

NOTE: APSP is equipped with a 200W power supply.

Power Management Function (ACPI support function)

Device Standby Mode

- Independent power management timer for hard disk drive devices (0-15 minutes, time step=1 minute).
- Hard disk drive goes into Standby mode (for ATA standard interface).
- Disable V-sync to control the VESA DPMS monitor.
- Resume method: device activated (Keyboard for DOS, keyboard & mouse for Windows).
- Resume recovery time: 3-5 sec.

Global Standby Mode

- Global power management timer (2-120 minutes, time step=10 minute).
- Hard disk drive goes into Standby mode (for ATA standard interface).
- Disable H-sync and V-sync signals to control the VESA DPMS monitor.
- Resume method: Return to original state by pushing external switch button, modem ring in, keyboard and mouse for APM mode.
- Resume recovery time: 7-10 sec.

Suspend Mode

- Independent power management timer (2-120 minutes, time step=10 minutes) or pushing external switch button.
- CPU goes into SMM.
- CPU asserts STPCLK# and goes into the Stop Grant State.
- LED on the panel turns amber colour.
- Hard disk drive goes into SLEEP mode (for ATA standard interface).
- Disable H-sync and V-sync signals to control the VESA DPMS monitor.
- Ultra I/O and VGA chip go into power saving mode.
- Resume method: Return to original state by pushing external switch button, modem ring in, keyboard and mouse for APM mode.
- Return to original state by pushing external switch button, modem ring in and USB keyboard for ACPI mode.

ACPI

- ACPI specification 1.0.
- S0, S1, S3 and S5 sleep state support.
- On board device power management support.
- On board device configuration support.

System Utilities

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

NOTE: If you repeatedly receive Run Setup messages, the battery may be bad/flat. In this case, the system cannot retain configuration values in CMOS.

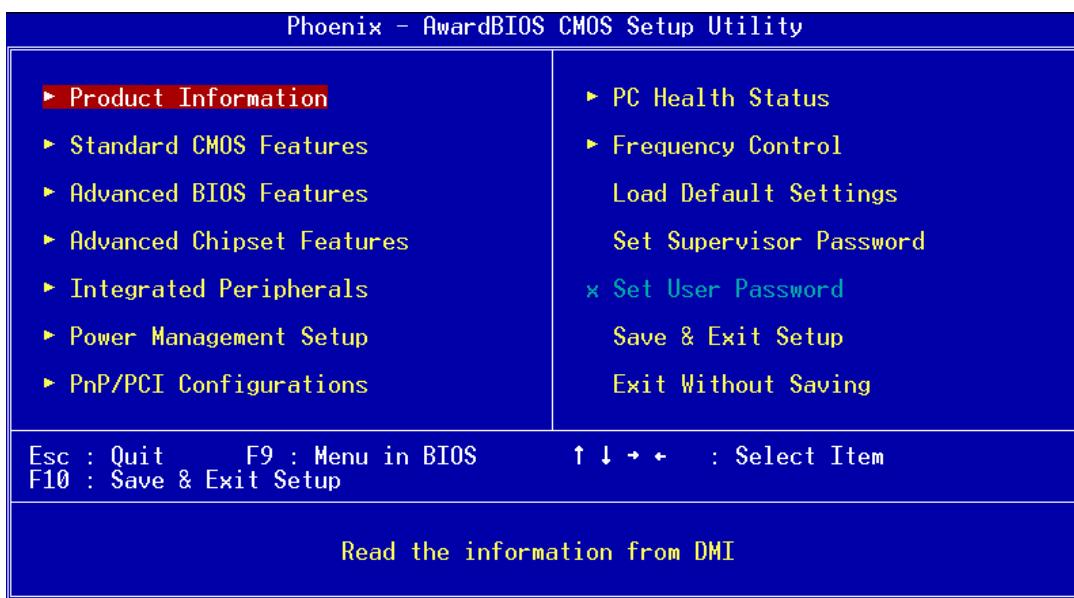
Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message of "Press DEL to enter SETUP" appears on the screen, press **DEL** to enter the setup menu.

NOTE: If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On. You may also restart the system by simultaneously pressing [Ctrl+Alt+Delete].

The Setup Utility main menu then appears:



The command line at the bottom of the menu tells you how to move within a screen and from one screen to another.

- ❑ To select an option, move the highlight bar by pressing  or  then press .
- ❑ To change a parameter setting, press  or  until the desired setting is found.
- ❑ Press  to return to the main menu. If you are already in the main menu, press  again to exit Setup.

The parameters on the screens show default values. These values may not be the same as those in your system.

The grayed items on the screens have fixed settings and are not user-configurable.

NOTE: Due to the application of a new version of BIOS Setup program, you may find the BIOS menu is largely different from the former models. However, you will soon find out that this version is much more compact than the former ones.

Product Information

The screen below appears if you select Product Information from the main menu:

The Product Information menu contains general data about the system, such as the product name, serial number, BIOS version, etc. These information is necessary for troubleshooting (may be required when asking for technical support).

Phoenix - AwardBIOS CMOS Setup Utility		
Product Information		
Product Name	AcerPower SP	Item Help
System S/N	F61	Menu Level ►
Main Board ID		
Main Board S/N		
System BIOS Version	V6.00	
SMBIOS Version	2.3	
System BIOS ID	R01-A1	
BIOS Release Date	Feb 9, 2003	

↑↓↔:Move Enter:Select +/-:PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Default Settings

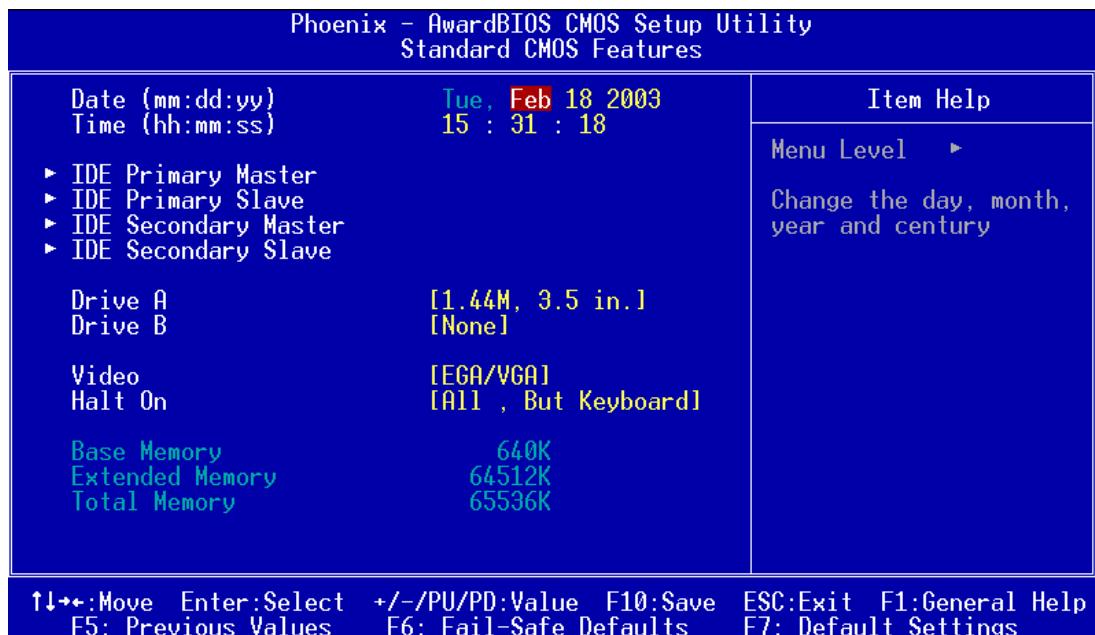
The following table describes the parameters found in this menu:

Parameter	Description
Product Name	Displays the model name of your system.
System S/N	Displays your system's serial number.
Main Board ID	Displays the main board's identification number.
Main Board S/N	Displays your main board's serial number.
System BIOS Version	Specifies the version of your BIOS utility.
SMBIOS version	The System Management Interface (SM) BIOS allows you to check your system hardware components without actually opening your system. Hardware checking is done via software during start up. This parameter specifies the version of the SMBIOS utility installed in your system.
System BIOS ID	Specifies the version ID of the BIOS utility.
BIOS Release Date	Displays the release date of the BIOS utility.

Standard CMOS Features

Select Standard CMOS Features from the main menu to configure some basic parameters in your system.

The following screen shows the Standard CMOS Features menu:



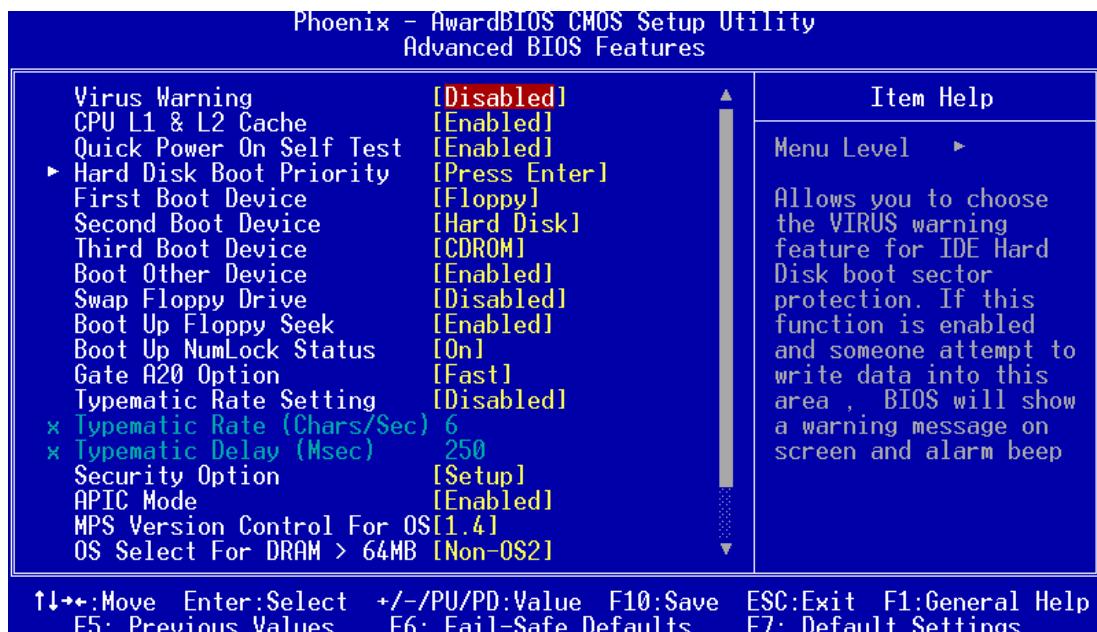
The following table describes the parameters found in this menu. Settings in **boldface** are the default and suggested settings.

Parameter	Description	Options
Date	Lets you set the date following the weekday-month-day-year format	Weekday: Sun, Mon...Sat Month: Jan, Feb...Dec. Day: 1 to 30 Year: 1980 to 2079
Time	Lets you set the time following the hour-minute-second format	Hour: 0 to 23 Minute: 0 to 59 Second: 0 to 59
IDE Primary Channel Master	Allows you to configure the hard disk drive connected to the master port of IDE channel 1. To enter the IDE Primary Master setup, press [Enter]. The IDE CD-ROM is always automatically detected.	IDE Device Model Number: None
IDE Primary Channel Slave	Allows you to configure the hard disk drive connected to the slave port of IDE channel 1. To enter the IDE Primary Slave setup, press [Enter]. The IDE CD-ROM is always automatically detected.	IDE Device Model Number: None

Parameter	Description	Options
IDE Secondary Channel Master	Allows you to configure the hard disk drive connected to the master port of IDE channel 2. To enter the IDE Secondary Master setup, press [Enter]. The IDE CD-ROM is always automatically detected.	IDE Device Model Number: None
IDE Secondary Channel Slave	Allows you to configure the hard disk drive connected to the slave port of IDE channel 2. To enter the IDE Secondary Slave setup, press [Enter]. The IDE CD-ROM is always automatically detected.	IDE Device Model Number: None
Drive A	Allows you to configure your floppy drive A.	1.44 MB, 3.5-inch None 360 KB, 5.25-inch 1.2 MB, 5.25-inch 720 KB, 3.5-inch 2.88 MB, 3.5-inch
Drive B	Allows you to configure your floppy drive B.	1.44 MB, 3.5-inch None 360 KB, 5.25-inch 1.2 MB, 5.25-inch 720 KB, 3.5-inch 2.88 MB, 3.5-inch
Video	This item specifies the type of video card in use. The default setting is VGA/EGA. Since current PCs use VGA only, this function is almost useless and may be disregarded in the future.	VGA/EGA CGA40 CGA80 Mono
Halt On	This parameter enables you to control the system stops in case of Power On Self Test errors (POST).	All Errors No Errors All but Keyboard All but Diskette All by Disk/Key
Base Memory	Refers to the option of memory that is available to standard DOS programs. DOS systems have an address space of 1MB, but the top 384KB (called high memory) is reserved for system use. This leaves 640 KB of conventional memory. Everything above 1MB is either extended or extended memory.	
Extended Memory	Memory above and beyond the standard 1MB of base memory that DOS supports. Extended memory is only available in PCs with an Intel 80286 or later microprocessor. Extended memory is not configured in any special manner and is therefore unavailable to most DOS programs. However, MS Windows and OS/2 can use extended memory.	
Total Memory	Total based and extended memory, and I/O ROM 384KB available to the system.	

Advanced BIOS Features

The following screen shows the Advanced BIOS Features:



The following table describes the parameters found in this menu. Settings in **boldface** are the default and suggested settings.

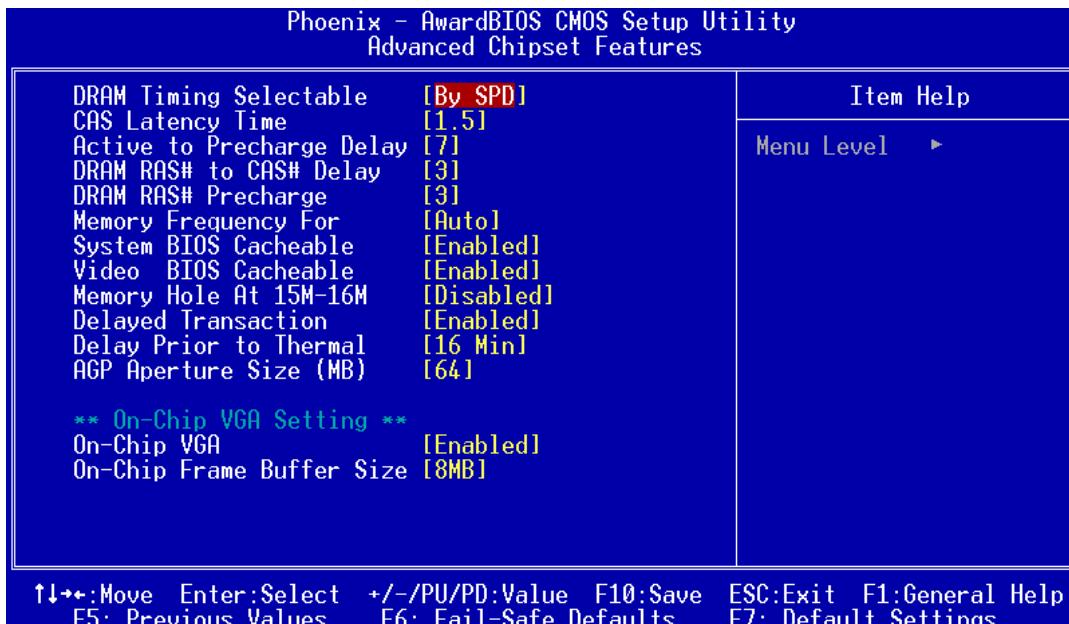
Parameter	Description	Options
Virus Warning	Allows you to set the virus warning feature for IDE Hard Disk boot sector protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on screen and beep.	Enabled Disabled
Quick Power On Self Test	This parameter speeds up POST by skipping some items that are normally checked.	Enabled Disabled
Hard Disk Boot Priority		
First/Second/Third Boot Device	The items allow you to set the sequence of boot device where BIOS attempts to load the disk operating system.	Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP, LAN, Disabled (Disable this sequence). The sequence following the order of HDD, Floppy and CD-ROM is recommended.
Boot Other Device	This parameter allows you to specify the system boot up search sequence.	Enabled Disabled
Swap Floppy Drive	Setting to Enabled will swap floppy drive a: and b:.	Enabled Disabled
Boot Up Floppy Seek	Setting to Enabled will make BIOS seek floppy drive a: before booting the system.	Enabled Disabled

Parameter	Description	Options
Boot Up NumLock Status	Sets the NumLock status when the system is powered on. Setting to On will turn on the NumLock key when the system is powered on. Setting to Off will allow users to use the arrow keys on the numeric keypad.	On Off
Gate A20 Option	This item is to set the Gate A20 status. A20 refers to the first 64KB of extended memory. When the default value Fast is selected, the Gate A20 is controlled by port 92 or chipset specific method resulting in faster system performance. When Normal is selected, A20 is controlled by a keyboard controller or chipset hardware.	Fast Normal
Typematic Rate Setting	This item is used to enable or disable the typematic rate setting including Typematic Rate and Typematic Delay.	Enabled Disabled
Typematic Rate	After Typematic Rate Setting is enabled, this item allows you to set the rate (characters/second) at which keys are accelerated.	Settings: 6,8,10,12,15,20,24 and 30.
Typematic Delay	This item allows you to select the delay between when the key was first pressed and when the acceleration begins	Settings: 250, 500, 750 and 1000.
Security Option	Specifies the type of BIOS password protection that is implemented. Setup means that the password prompt appears only when end users try to run Setup. System means that a password prompt appears every time when the computer is powered on or when end users try to run Setup.	Setup System
APIC Mode	This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources from the system.	Enabled Disabled
MPS Version Control for OS	This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system.	1.4 1.1

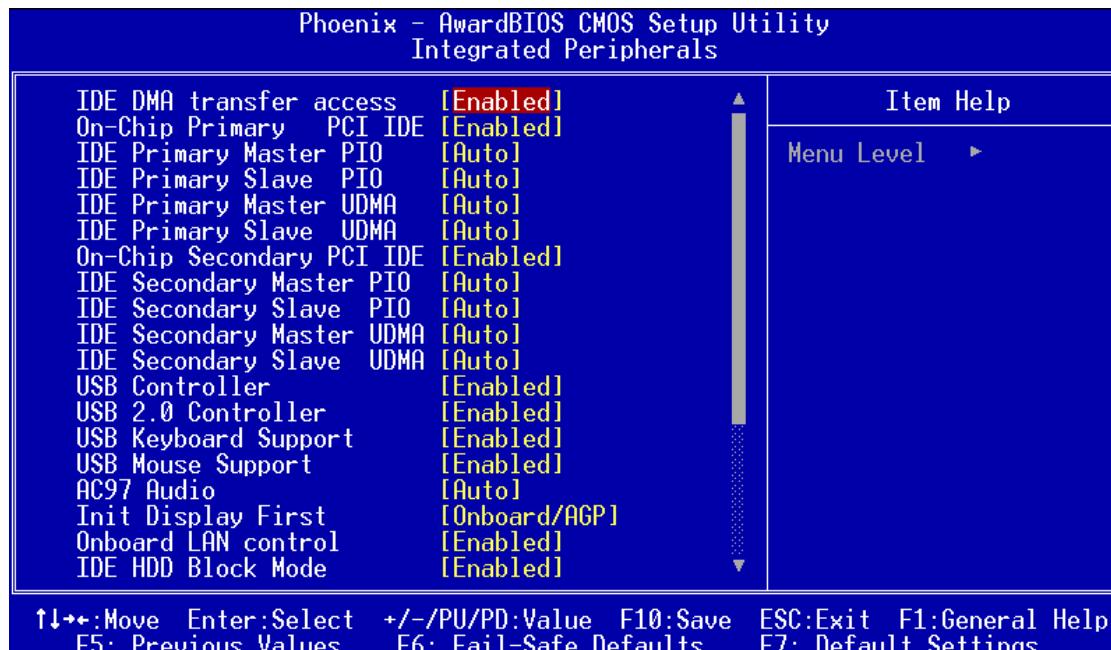
Advanced Chipset Features

The advanced chipset features setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

NOTE: Change these settings only if you are familiar with the chipset.



Integrated Peripherals



The following table describes each Integrated Peripherals parameters. Settings in boldface are the default and suggested values.

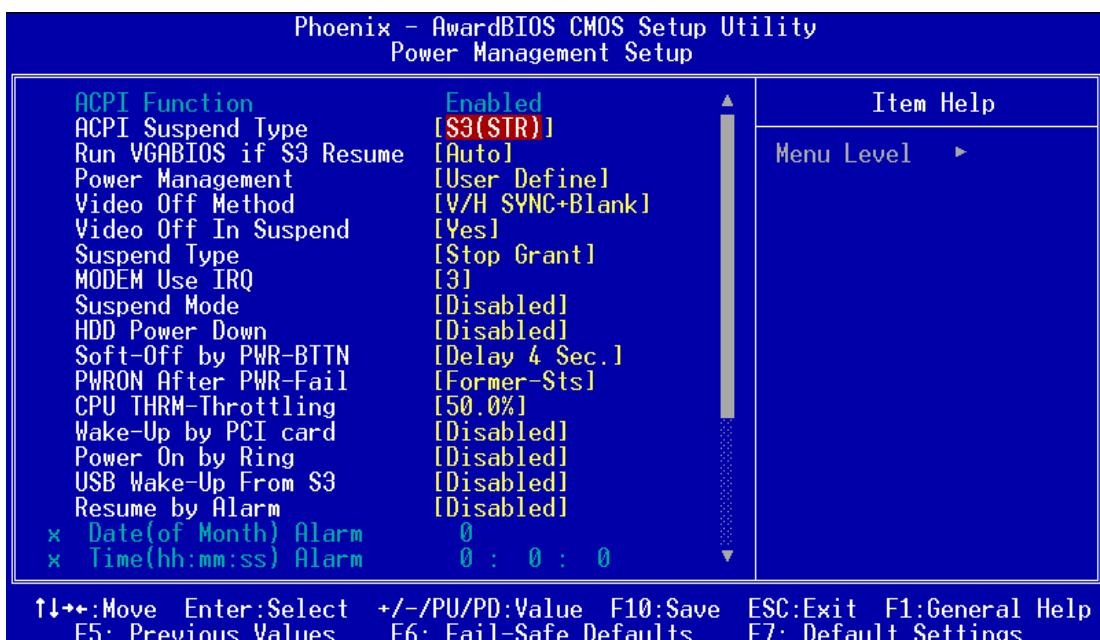
Parameter	Description	Options
Internal PCI/IDE	This setting enables or disables the internal primary and secondary PCI & IDE controllers.	Both , Disabled, Primary, Secondary
IDE Primary Master PIO IDE Primary Slave PIO IDE Secondary Master PIO IDE Secondary Slave PIO	Setting these items to "Auto" activates the HDD speed auto-detect function. The PIO mode specifies the data transfer rate of the HDD. For example, mode 0 data transfer rate is 3.3MB/s, mode 1 is 5.2 MB/s, mode 2 is 8.3MB/s, mode 3 is 11.1 MB/s and mode 4 is 16.6MB/s. If your hard disk performance becomes unstable, you may manually try the slower mode.	Auto , mode 1, mode 2, mode 3 and mode 4
Primary Master UltraDMA Primary Slave UltraDMA Secondary Master UltraDMA Secondary Slave UltraDMA	These items allow you to set the Ultra DMA 33/66/100 mode supported by the hard disk drive connected to your primary and secondary IDE connectors.	Auto Disables
IDE Burst Mode	This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive.	Enabled Disabled
AC97 Audio	Enabling the on-die AC97 Auto if no add-on PCI audio device.	Auto Disabled
System Share Memory Size	For SiS650 chipset, the system shares memory to the onboard VGA card. This setting controls the exact memory size shared to the VGA card.	4, 8, 16, 32 , 64MB

Parameter	Description	Options
USB Controller	This item is used to enable or disable the on-chip USB.	Enabled Disabled
USB Keyboard Support	This item lets you enable or disable the USB keyboard driver within the onboard BIOS. The keyboard driver simulates legacy keyboard command and lets you use a USB keyboard during POST or after boot if you do not have a USB driver in the operating system.	Enabled Disabled
USB Mouse Support	This item lets you enable or disable the USB mouse driver within the onboard BIOS. The keyboard driver simulates legacy mouse command and lets you use a USB mouse during POST or after boot if you do not have a USB driver in the operating system.	Enabled Disabled
Onboard LAN function	To enable or disable the onboard LAN controller	Enabled Disabled
Onboard LAN Boot ROM	This setting determines whether or not to activate the boot ROM of the onboard LAN chip.	Enabled Disabled
IDE HDD Block Mode	Block mode is also called block transfer, multiple commands or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select "Enabled" for automatic detection of the optimal number of block read/write per sector the drive can support.	Enabled Disabled
Onboard FDC Controller	Setting this parameter to "Enable" allows you to connect your floppy disk drives to the onboard floppy disk connector instead of a separate controller card. Change the setting to "Disabled" if you want to use a separate controller card.	Enabled Disabled

Power Management Setup

The Power Management menu lets you configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.

The following screen shows the Power Management parameters and their default settings:

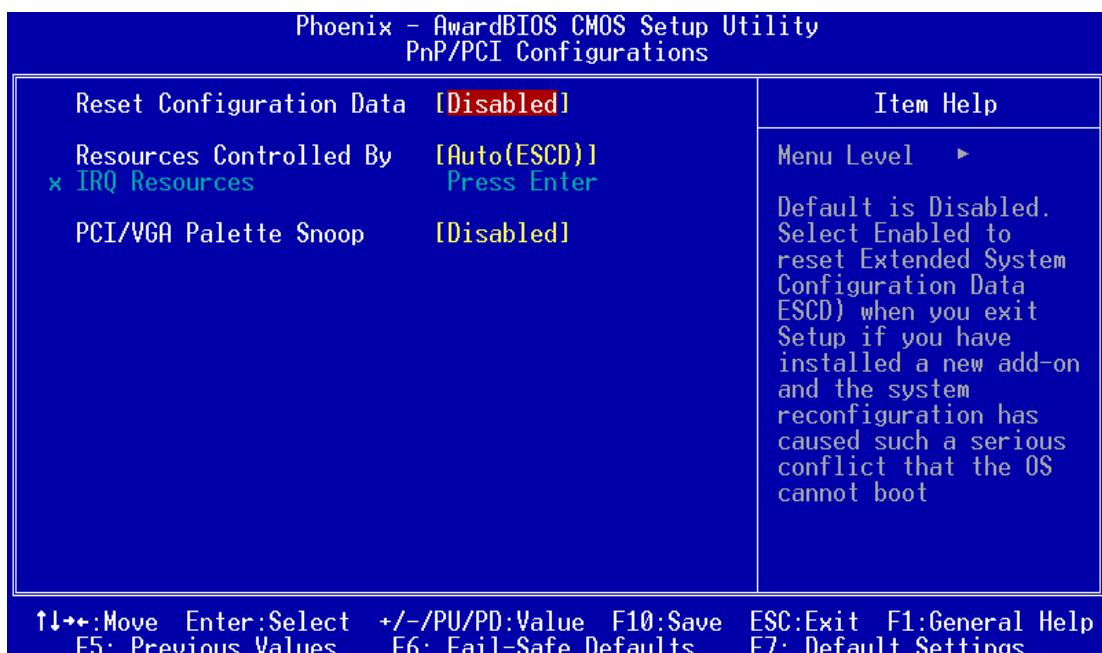


The following table describes the parameters found in this menu. Settings in **boldface** are the default and suggested settings.

Parameter	Description	Options
ACPI Function	This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/2000/Me, select Enabled.	Enabled Disabled
ACPI Suspend Type	This item specifies the power saving modes for ACPI function. S1(POS): The S1 sleep mode is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system context. S3 (STR): The S3 sleep mode is a power-down state in which power is supplied only to essential components such as main memory and wake-capable devices and all system context is saved to main memory. The information stored in memory will be used to restore the PC to the previous state when an <i>wake-up</i> event occurs. S1&S3: Both S1 and S3 will be adopted.	S3 S1 S1&S3

Parameter	Description	Options
Video Off Option	This item is to control the mode in which the monitor will shut down. Always On: Always keep the monitor on. Suspend --> Off: During suspend mode, the monitor will shut down. Susp, Stby --> During suspend or standby mode, the monitor will shut down. All Modes --> Off: The monitor is turned off during doze, standby or suspend mode.	Always On Suspend Off Susp, Stby --> Off All Modes
Video Off Method	This item determines the manner in which the monitor is blanked. V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer. Blank Screen: This option only write blanks to the video buffer. DPMS Supported: Initial display power management signaling.	V/H SYNC+Blank Blank Screen DPMS Supported
Modem Use IRQ	This setting names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of selected IRQ always awakens the system.	3, 4, 5, 7, 9, 10, 11, AUTO.
HDD Power Down	If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active.	Disabled 1~15 Mins
Soft-off by PWR-BTTN	This feature allows users to configure the power button function.	Instant Off: The power button functions as a normal power-on/-off button. Delay 4 Sec.: When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer will be turned off.
After PC Power Lost	This item specifies when your system reboot after a power failure or interrupt occurs.	Power Off Power On Last State
Power On by Ring	When enabled, any fax/modem activity wakes up the system from suspend mode.	Disabled Enabled
Wake-Up by PCI Card	Use PCI Wake-up system. PCI must meet PCI 2.2 specification.	Disabled Enabled
Resume by Alarm	Use this option to set the date and time for your computer to boot up. Date (of month) Alarm* - Indicate the month for system to boot up. Set it to 0 if you want to boot up everyday. Time (hh:mm:ss) Alarm* - Indicate the hour, minute and second for system to boot up.	Disabled Enabled *Set Resume by Alarm to Enable, then press "Enter" to show the range of Date and Time Alarm.

PnP/PCI Configuration

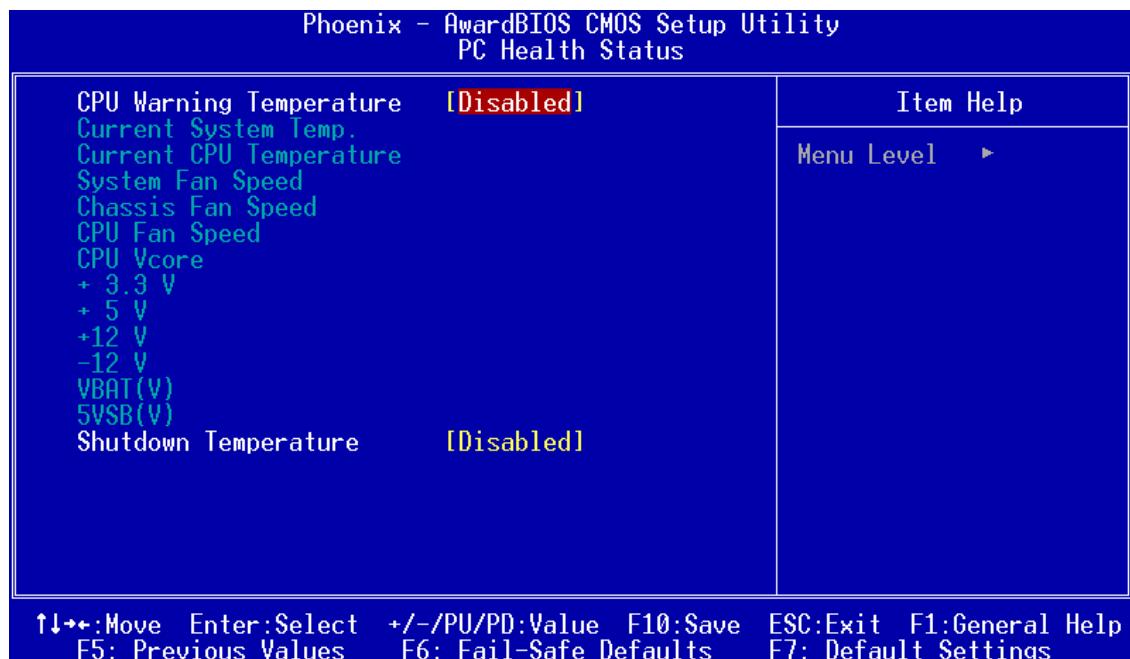


The following table describes the parameters found in this menu. Settings in **boldface** are the default and suggested settings.

Parameter	Description	Options
Reset Configuration Data	Selecting "Enabled" to reset Extended System Configuration Data (ESCD) only if you installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. Otherwise, you should leave it unchanged.	Disabled Enabled
Resources Controlled By	This BIOS can automatically configure all of the boot and Plug and Play compatible devices. You can also set it as Manual and go into each of the sub menu to choose specific resources.	Auto (ESCD) Manual
IRQ Resources	The items are adjustable only when "Resources Controlled By" is set to Manual. By pressing "Enter" to access the sub menu.	PCI Device Reserved
PCI/VGA Palette Snoop	Disabled - Data read or written by the CPU is only directed to the PCI VGA device's palette registers. Enabled - Data read or written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both VGA devices to be identical.	Disabled Enabled *If any ISA bus adapter in the system requires VGA Palette snooping, the setting must be set to "Enabled".

NOTE: It is strongly recommended that only experienced users should make any changes to the default settings.

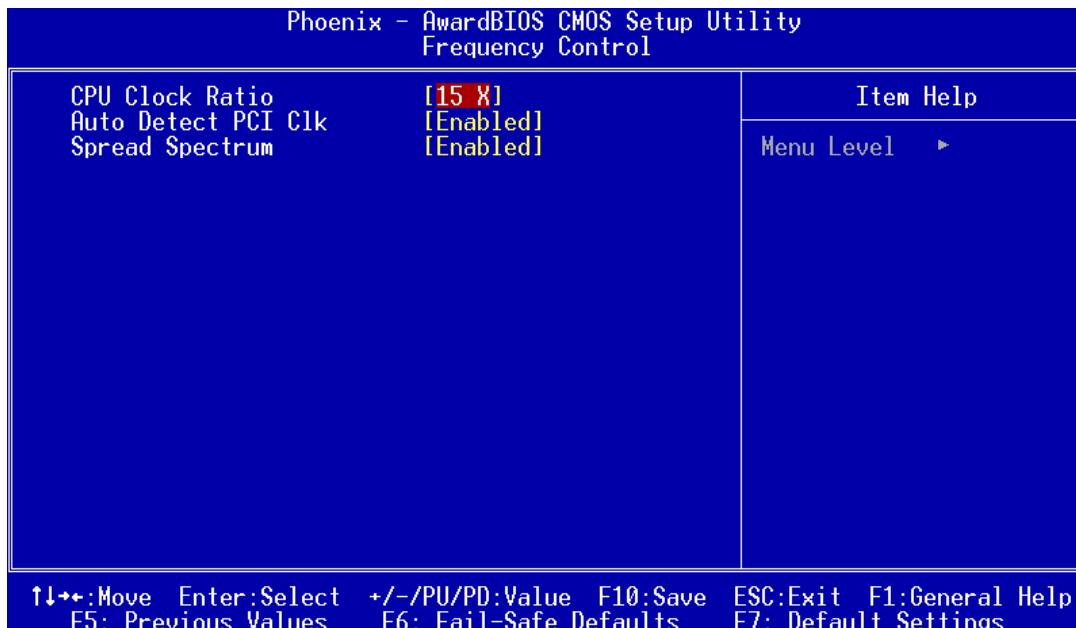
PC Health Status



The following table describes the parameters found in this menu:

Parameter	Description	Options
Shutdown Temperature	This option is for setting the shutdown temperature level for the processor. When the processor reaches the temperature you set, the ACPI-aware system will be shut down.	
Current System/CPU Temperature, CPU/ System fan, Vcore, ect.	These items display the current status of all of the mainboard hardware devices/components such as CPU voltages, temperatures and all fans' speeds.	

Frequency Control

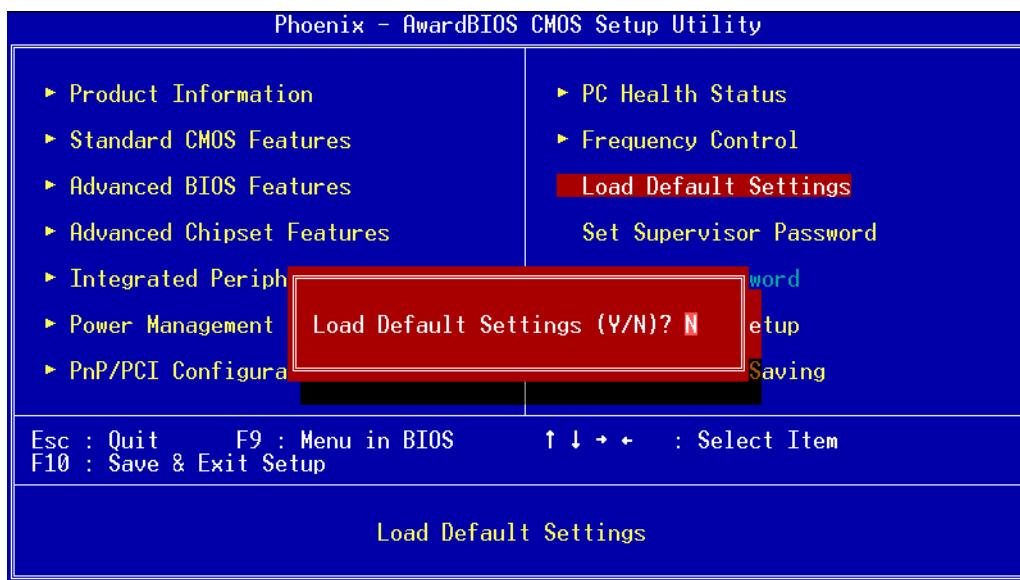


The following table describes the parameters found in this menu. Settings in **boldface** are the default and suggested settings.

Parameter	Description	Options
CPU Clock Ratio	If the CPU Ratio is set to Manual, end users can choose a suitable ratio to support the CPU.	8x to 50x
Auto Detect PCI Clk	This option allows you to enable/disable the feature of auto detecting the clock frequency of the installed DIMM/PCI bus.	Enabled Disabled
Spread Spectrum	When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at Disabled for optimal system stability and performance. But if you are plagued by EMI, setting to Enabled for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clockspeed which may just cause your overclocked processor to lock up.	

Load Default Settings

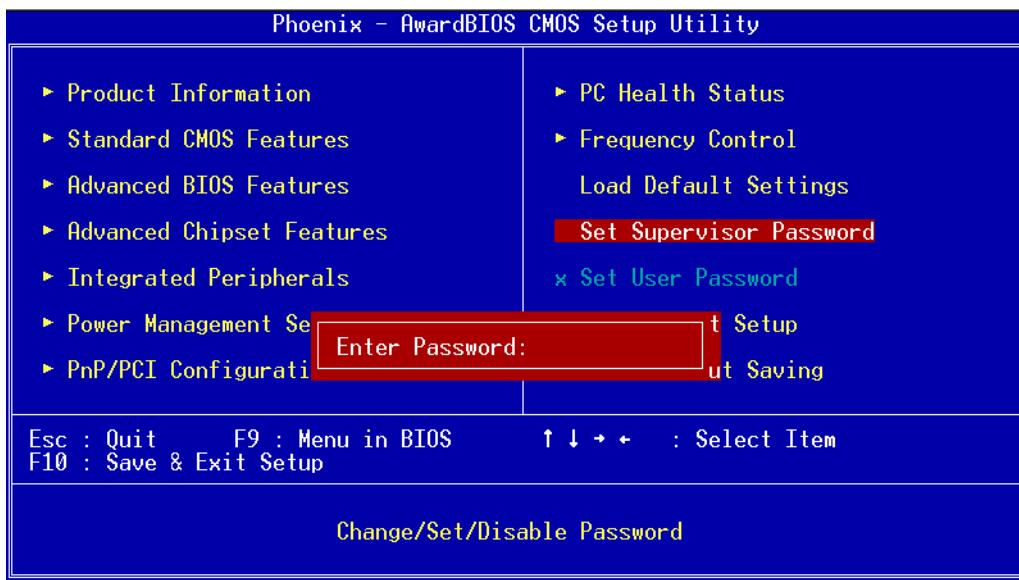
The default settings are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. When you select the item, a message as below appears:



Pressing Y (Yes) loads the BIOS default values for the most stable system performance.

Set Supervisor/User Password

When you choose to set supervisor password, a message as below will appear on the screen:

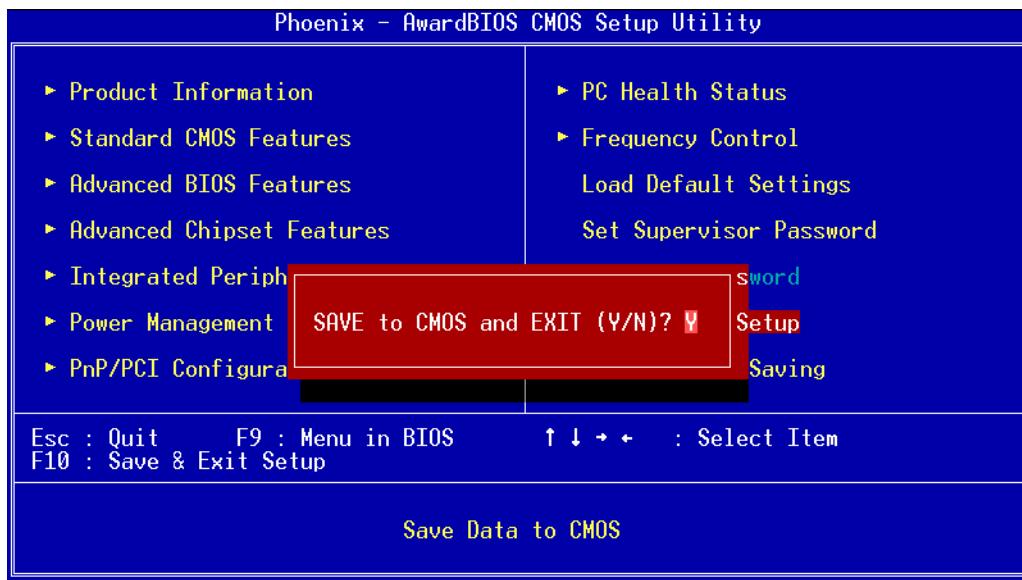


At the prompt, type your password. Your password can be up to **six** characters in length. After typing the password, press “Enter”. At the next prompt, re-type your password and press “Enter” again to confirm the new password. After the password entry, the screen automatically reverts to the main screen.

To disable the password, press “Enter” when prompted to enter the password. The following screen will display a message confirming that the password has been disabled.

Save & Exit Setup/Exit Without Saving

If you select Save and Exit Setup, you will exit the BIOS utility. The following dialogue box will appear.



Select Y (Yes) to exit Setup. Select N (No) to return to the main menu.

If you select Exit Without Saving, you will discard all the changes you made and exit Setup.

Machine Disassembly and Replacement

Please also refer to the Acer Power SP Service CD for the assembly/disassembly procedure.

To disassemble the computer, you need the following tools:

- Wrist grounding strap and conductive mat for preventing electrostatic discharge.
- Wire cutter.
- Phillips screwdriver (may require different size).

NOTE: The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatches when putting back the components.

General Information

Before You Begin

Before proceeding with the disassembly procedure, make sure that you do the following:

1. Turn off the power to the system and all peripherals.
2. Unplug the AC adapter and all power and signal cables from the system.

Standard Disassembly Procedure

This section tells you how to disassemble the system when you need to perform system service. Please also refer to the disassembly video, if available.

CAUTION: Before you proceed, make sure you have turned off the system and all peripherals connected to it.

Opening the System

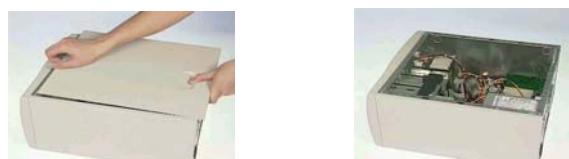
1. Place the system unit on a flat, steady surface.



2. Turn the housing back, and remove the screws as shown here.



3. Slide out the side door.



Removing the Front Panel

1. Release the six latches behind the front bezel.
2. Remove the bezel by following the instruction below.



Removing the CD-ROM, the Floppy and the HDD

1. Detach the modem card.



2. Disconnect the relevant cables.



3. Press the latch and remove the CD-ROM drive.



4. Press the latch and remove the floppy drive.



5. Press the latch again to release the hard disk module.



6. Detach the HDD from the bracket.



Removing the Power Supply

1. Remove the screws as shown here.



2. Remove the power supply.



Removing the Heatsink and the CPU

1. Disconnect the Pentium 4 CPU power cable.



2. Release the two heatsink latches.



3. Remove the heatsink module.



4. Remove the CPU by following the instructions here.



Removing the Daughter Board

1. Remove the screw as shown here.



2. Detach the USB cables from the daughter board.



Troubleshooting

This chapter provides troubleshooting information for the Acer Power SP:

- Power-On Self-Test (POST)
- Index of Error Messages
- Index of Error Codes and Error Beeps
- Index of Error Symptoms
- Undetermined Problems

Power-On Self-Test (POST)

Each time you turn on the system, the Power-on Self Test (POST) is initiated. Several items are tested during POST, but is for the most part transparent to the user.

The Power-On Self Test (POST) is a BIOS procedure that boots the system, initializes and diagnoses the system components, and controls the operation of the power-on password option. If POST discovers errors in system operations at power-on, it displays error messages on screen, generates a check point code at port 80h or even halts the system if the error is fatal.

The main components on the main board that must be diagnosed and/or initialized by POST to ensure system functionality are as follows:

- Microprocessor with built-in numeric co-processor and cache memory subsystem
- Direct Memory Access (DMA) controller
- Interrupt system
- Three programmable timers
- ROM subsystem
- RAM subsystem
- RTC RAM subsystem and real time clock/calendar with battery backup
- Onboard serial interface controller
- Onboard parallel interface controller
- Embedded hard disk interface and one diskette drive interface
- Keyboard and auxiliary device controllers
- I/O ports
 - PS/2-compatible mouse port
 - PS/2-compatible keyboard port
- Serial ports
- Parallel ports
- USB port

POST Check Points

When POST executes a task, it uses a series of preset numbers called check point to be latched at port 80h, indicating the stages it is currently running. This latch can be read and shown on a debug board.

The following table describes the Acer common tasks carried out by POST. A unique check point number represents each task.

Checkpoint	Description
CFh	Test CMOS R/W functionality
C0h	Early chipset initialization: <ul style="list-style-type: none">• Disable shadow RAM• Disable L2 Cache (socket 7 or below)• Program basic chipset registers
C1h	Detect memory <ul style="list-style-type: none">• Auto-detection of DRAM size, type and ECC.• Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips 2. Enable keyboard interface
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional) 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional) 3. Reset keyboard for Winbond 977 series Super I/O chips
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails. keep beeping the speaker.
0Fh	Reserved

Checkpoint	Description
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26h.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM Initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If Smos checksum fails, use default value instead.
24h	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
25h	Early PCI Initialization: <ul style="list-style-type: none">• Enumerate PCI bus number• Assign memory & I/O resource• Search for a valid VGA device & VGA BIOS, and put it into C000:0
26h	1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 2. Init onboard PWM 3. Init onboard H/W monitor devices
27h	Initialize INT 09 buffer
28h	Reserved

Checkpoint	Description
29h	<ol style="list-style-type: none"> 1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed.
2Ah	Reserved
2Bh	Invoke Video BIOS
2Ch	Reserved
2Dh	<ol style="list-style-type: none"> 1. Initialize double-byte language font (Optional) 2. Put information on screen display, including Award title, CPU type, CPU speed, full screen logo.
2Eh	Reserved
2Fh	Rederved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard if Early_Reset_KB is defined e.g. Winbond 977 series Super I/O chips. See also POST 63h
34h	Reserved
35h	Test DMA Channel 0
36h	Reserved
37h	Test DMA Channel 1
38h	Reserved
39h	Test DMA page registers
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2
41h	Reserved
42h	Reserved
43h	Test 8259 functionality
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	<ol style="list-style-type: none"> 1. Calculate total memory by testing the last double word of each 64K page. 2. Program write allocation for AMD K5 CPU.

<i>Checkpoint</i>	<i>Description</i>
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	<ol style="list-style-type: none"> 1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB Keyboard & Mouse
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Clear password according to H/W jumper (Optional)
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	<ol style="list-style-type: none"> 1. Display PnP logo 2. Early ISA PnP initialization - Assign CSN to every ISA PnP device
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	<ol style="list-style-type: none"> 1. Initialize Init_Onboard_Super_IO 2. Initialize Init_Onboard_AUDIO
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reset keyboard if Early_Reset_KB is not defined.
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved

Checkpoint	Description
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table
6Ch	Reserved
6Dh	<ol style="list-style-type: none"> 1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to “Auto”.
6Eh	Reserved
6Fh	<ol style="list-style-type: none"> 1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware
70h	Reserved
71h	Reserved
72h	Reserved
73h	Reserved
74h	Reserved
75h	Detech & install all IDE device: HDD, LS120, ZIP, CDROM...
76h	<p>(Optional feature)</p> <p>Enter AWDFLASH.EXE if:</p> <ul style="list-style-type: none"> - AWDFLASH.EXE is found in floppy drive. - ALT+F2 is pressed.
77h	Detect serial ports & parallel ports
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Init HDD write protect
7Dh	Reserved
7Eh	Reserved
7Fh	<p>Switch back to text mode if full screen logo is supported.</p> <ul style="list-style-type: none"> - If errors occur, report errors & wait for keys - If no errors occur or F1 key is pressed to continue: <p>Clear EPA or customization logo.</p>
80h	Reserved
81h	Reserved
82h	<ol style="list-style-type: none"> 1. Call chipset power management hook. 2. Recover the text font used by EPA logo (not for full screen logo). 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	<ol style="list-style-type: none"> 1. USB final initialization 2. Switch screen back to text mode

Checkpoint	Description
86h	Reserved
87h	NET PC: Build SYSID structure
88h	Reserved
89h	<ol style="list-style-type: none"> 1. Assign IRQs to PCI devices. 2. Set up ACPI table at top of the memory.
8Ah	Reserved
8Bh	<ol style="list-style-type: none"> 1. Invoke all ISA adapter ROMs 2. Invoke all PCI ROMs (except VGA)
8Ch	Reserved
8Dh	<ol style="list-style-type: none"> 1. Enable/Disable Parity Check according to CMOS setup. 2. APM Initialization
8Eh	Reserved
8Fh	Clear noise if IRQs
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	<ol style="list-style-type: none"> 1. Enable L2 cache 2. Program Daylight Saving 3. Program boot up speed 4. Chipset final initialization 5. Power management final initialization 6. Clear screen & display summary table 7. Program K6 write allocation 8. Program P6 class write combining
95h	Update keyboard LED & typematic rate
96h	<ol style="list-style-type: none"> 1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table
FFh	Boot attempt (INT 19h)

POST Error Messages List

If you cannot run the diagnostics program tests but did receive a POST error message, use "POST Error Messages List" to diagnose system problems. If you did not receive any error message, look for a description of your error symptoms in "Error Sympton List".

NOTE: When you have deemed it necessary to replace an FRU, and have done so, you must run a total system check to ensure that no other activity has been affected by the change. This system check can be done through the diagnostics program.

NOTE: Check all power supply voltages, switch, and jumper settings before you replace the main board. Also check the power supply voltages if you have a "system no-power" condition.

NOTE: To diagnose a problem, first find the BIOS error messages in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.

BIOS Messages	Action/FRU
I/O Parity Error	1. System board
CPU Clock Mismatch	1. Enter BIOS Setup and load the default settings. 2. Ensure BIOS setting for processor is set correctly.
Real Time Clock Error	1. Enter BIOS Setup and load the default settings.
CMOS Battery Bad	2. RTC Battery.
CMOS Checksum Error	3. System Board.
Equipment Configuration Error	1. Ensure the system configuration set in BIOS Setup is correct. 2. Enter BIOS Setup and load the default settings. 3. RTC battery. 4. System board.
System Management Memory Bad	1. Insert the memory modules in the DIMM sockets properly, then reboot the system.
Memory Error at MMMM:SSSS:OOOOh	2. Memory module. 3. System board.
RAM Parity Error	1. Enter BIOS Setup to disable parity check. 2. Memory module 3. System board
PS/2 Keyboard Error or Keyboard Not Connected	1. Re-connect PS/2 keyboard and mouse.
PS/2 Keyboard Interface Error	2. Enter BIOS Setup and load the default settings.
PS/2 Keyboard Locked	3. PS/2 keyboard 4. PS/2 mouse 5. System board
Onboard xxx... Conflict(s)	1. Enter BIOS Setup and load the default settings. 2. Remove all adapter cards that are NOT factory-installed, then reboot the system.
Floppy Disk Controller Error	1. Diskette drive cable/connection.
Floppy Drive A Error	2. Diskette drive.
Floppy Drive B Error	3. System board
On Board Parallel Port Conflict(s)	1. Enter BIOS Setup and load the default settings.
On Board Serial Port 1 Conflict(s)	2. Remove all adapter cards that are NOT factory-installed, then reboot the system.
On Board Serial Port 2 Conflict(s)	
Floppy Drive(s) Write Protected	1. Ensure that the diskette drive is not set to [Write Protected] in the Security Options in BIOS Setup.
Hard Disk Drive(s) Write Protected	2. Load default settings in Setup.
IDE Drive 0 Error	1. Enter BIOS Setup and load the default settings.
IDE Drive 1 Error	2. Check IDE drive jumper.
IDE Drive 2 Error	3. IDE hard disk drive power.
IDE Drive 3 Error	4. IDE hard disk drive cable/connection. 5. IDE hard disk drive.

BIOS Messages	Action/FRU
IRQ Setting Error Expansion ROM Allocation Fail I/O Resource Conflict(s) Memory Resource Conflict(s)	1. Load default settings in Setup. 2. Enter BIOS Setup and set the Reset Resource Assignments of the PnP/PCI Options to Yes, then reboot the system. 3. Remove all adapter cards that are NOT factory-installed, then reboot the system
PCI Device Error	1. Load default settings in Setup. 2. Enter BIOS Setup and set the Reset Resource Assignments of the PnP/PCI Options to Yes, then reboot the system. 3. Remove all adapter cards that are NOT factory-installed, then reboot the system.
PS/2 Pointing Device Interface Error PS/2 Pointing Device Error	1. Re-connect PS/2 keyboard and mouse. 2. Enter BIOS Setup and load the default settings. 3. PS/2 mouse 4. PS/2 keyboard 5. System board
DMI Table Was Destroyed	1. Flash BIOS
Press "DEL" key to enter Setup or F1 key to continue	1. Press DEL to enter Setup and reconfigure the system.
Press ESC to turn off NMI, or any key to reboot	1. Press ESC to reject NMI error or press any other key to reboot the system.
Insert system diskette and press ENTER key to reboot	1. Insert a bootable disk into the floppy disk drive or remove this disk if a hard disk is installed.

Error Symptoms List

NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause

Error Symptom	Action/FRU
Processor / Processor Fan	
NOTE: Normally, the processor fan should be operative, and the processor clock setting should be exactly set to match its speed requirement before diagnosing any processor problems.	
Processor fan does not run but power supply fan runs.	<ol style="list-style-type: none">1. Ensure the system is not in power saving mode. See "Power Management" in chapter 2.2. With the system power on, measure the voltage of processor fan connector. Its reading should be +12Vdc.3. System board.
Processor test failed.	<ol style="list-style-type: none">1. Processor2. System board
System Board and Memory	
NOTE: Ensure the memory modules are installed properly and the contact leads are clean before diagnosing any system problems.	
Memory test failed.	<ol style="list-style-type: none">1. See "Memory"2. System board
Incorrect memory size shown or repeated during POST.	<ol style="list-style-type: none">1. Insert the memory modules in the DIMM sockets properly, then reboot the system.2. Memory module.3. System board.
System works but fails to enter power saving mode when the Power Management Mode is set to Enabled, and power saving timer set in BIOS has elapsed.	<ol style="list-style-type: none">1. Enter BIOS Setup and load default settings. In Windows 98, check settings in Power Management Property of Control Panel.2. Reload software from Recovery CD.
System hangs before system boot.	<ol style="list-style-type: none">1. See "Index of Symptoms"2. See "Undetermined Problems"
System hangs after system boot.	<ol style="list-style-type: none">1. Execute a system test and set it to stop at "Halt on Error" to see the potential cause of the problem.2. See "Undetermined Problems".
Blinking cursor only; system does not work.	<ol style="list-style-type: none">1. Diskette/IDE drive connection/cables2. Diskette/IDE disk drives3. See "Undetermined Problems".4. System board
Diskette Drive	
NOTE: Ensure the diskette drive is configured correctly in BIOS Setup and its read/write head is clean before diagnosing any diskette drive problems.	
Media and drive are mismatched.	<ol style="list-style-type: none">1. Ensure the diskette drive is configured correctly in the Disk Drives of BIOS Setup.2. Ensure the diskette drive is correctly formatted.3. Diskette drive connection/cable4. Diskette drive5. System board
Diskette drive does not work.	<ol style="list-style-type: none">1. Ensure the diskette drive is not set to None in the Disk Drives of BIOS Setup.2. Diskette drive power3. Diskette drive connection/cable4. Diskette drive5. System board

Error Symptom	Action/FRU
Diskette drive read/write error.	<ol style="list-style-type: none"> 1. Diskette. 2. Ensure the diskette drive is not set to Write protect in the Security Options of BIOS Setup. 3. Diskette drive cable. 4. Diskette drive. 5. System board.
Diskette drive LED comes on for more than 2 minutes when reading data.	<ol style="list-style-type: none"> 1. Diskette 2. Diskette drive connection/cable 3. Diskette drive 4. System board
Diskette drive LED fails to light, and the drive is unable to access for more than 2 minutes.	<ol style="list-style-type: none"> 1. Diskette 2. Diskette drive power 3. Diskette drive connection/cable 4. Diskette drive 5. System board
Diskette drive test failed.	<ol style="list-style-type: none"> 1. Diskette 2. Diskette drive 3. Diskette drive cable 4. System board
Hard Disk Drive	
NOTE: Ensure hard disk drive is configured correctly in BIOS Setup, cable/jumper are set correctly before diagnosing any hard disk drive problems.	
Hard disk drive test failed.	<ol style="list-style-type: none"> 1. Enter BIOS Setup and Load default settings. 2. Hard disk drive cable. 3. Hard disk drive. 4. System board.
Hard disk drive cannot format completely.	<ol style="list-style-type: none"> 1. Enter BIOS Setup and Load default settings. 2. Hard disk drive cable. 3. Hard disk drive. 4. System board.
Hard disk drive has write error.	<ol style="list-style-type: none"> 1. Enter BIOS Setup and Load default settings. 2. Hard disk drive.
Hard disk drive LED fails to light, but system operates normally.	<ol style="list-style-type: none"> 1. With the system power on, measure the voltage of hard disk LED connector. 2. Hard drive LED cable.
CD/DVD-ROM Drive	
NOTE: Ensure CD/DVD-ROM drive is configured correctly in BIOS Setup, cable/jumper are set correctly and its laser beam is clean before diagnosing any CD/DVD-ROM drive problems.	
CD/DVD-ROM drive LED doesn't come on but works normally.	<ol style="list-style-type: none"> 1. CD/DVD-ROM drive
CD/DVD-ROM drive LED flashes for more than 30 seconds before LED shutting off. Software asks to reinstall disc. Software displays a reading CD/DVD error.	<ol style="list-style-type: none"> 1. CD/DVD-ROM may have dirt or foreign material on it. Check with a known good disc. 2. CD/DVD-ROM is not inserted properly. 3. CD/DVD-ROM is damaged.
CD/DVD-ROM drive cannot load or eject when the system is turned on and its eject button is pressed and held.	<ol style="list-style-type: none"> 1. Disconnect all cables from CD/DVD-ROM drive except power cable, then press eject button to try to unload the disk. 2. CD/DVD-ROM drive power. 3. CD/DVD-ROM drive
CD/DVD-ROM drive does not read and there are no messages are displayed.	<ol style="list-style-type: none"> 1. CD may have dirt or foreign material on it. Check with a known good disc. 2. Ensure the CD/DVD-ROM driver is installed properly. 3. CD/DVD-ROM drive.

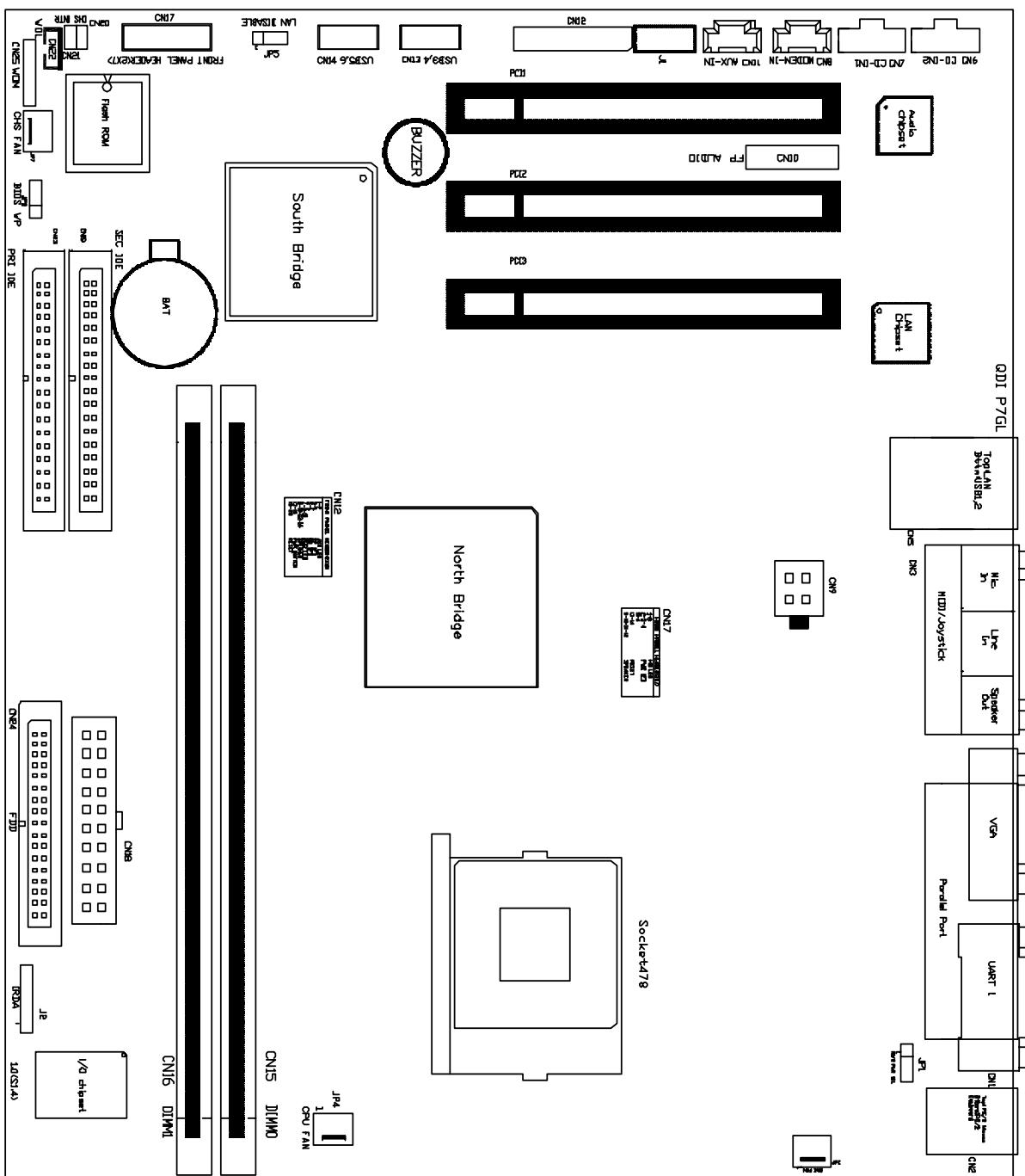
Error Symptom	Action/FRU
CD/DVD-ROM drive can play audio CD but no sound output.	<ol style="list-style-type: none"> 1. Ensure the headphone jack of the CD/DVD-ROM has an output. 2. Turn up the sound volume. 3. Speaker power/connection/cable. 4. CD/DVD-ROM drive.
Real-Time Clock	
Real-time clock is inaccurate.	<ol style="list-style-type: none"> 1. Ensure the information in the Date and Time of BIOS Setup is set correctly. 2. RTC battery. 3. System board
Audio	
Audio software program invokes but no sound comes from speakers.	<ol style="list-style-type: none"> 1. Speaker power/connection/cable.
Modem	
Modem ring cannot wake up system from suspend mode.	<ol style="list-style-type: none"> 1. Ensure the Modem Ring Indicator in BIOS Setup or Power Management is set to Enabled. 2. If PCI modem card is used, reinsert the modem card to PCI slot firmly or replace the modem card. 3. If ISA modem card is used, ensure the modem ring-in cable from the modem card to system board is connected properly. 4. In Win 98, ensure the telephone application is configured correctly for your modem and set to receive messages and/or fax.
Data/fax modem software program invokes but cannot receive/send data/fax	<ol style="list-style-type: none"> 1. Ensure the modem card is installed properly.
Fax/voice modem software program invokes but has no sound output. (Data files are received normally; voice from modem cannot be produced, but system sound feature works normally.)	<ol style="list-style-type: none"> 1. Ensure the modem voice-in cable from modem adapter card to system board
Video and Monitor	
Video memory test failed.	<ol style="list-style-type: none"> 1. Remove all non-factory-installed cards. 2. Load default settings (if screen is readable). 3. System board
Video adapter failed.	
Display problem: - Incorrect colors No high intensity Missing, broken, or incorrect characters Blank monitor(dark) Blank monitor(bright) Distorted image Unreadable monitor Other monitor problems	<ol style="list-style-type: none"> 1. Monitor signal connection/cable. 2. Monitor 3. Video adapter card 4. System board
Display changing colors.	<ol style="list-style-type: none"> 1. Monitor signal connection/cable 2. Monitor 3. System board
Display problem not listed above (including blank or illegible monitor).	<ol style="list-style-type: none"> 1. "Monitor". 2. Load default settings (if screen is readable). 3. System board

Error Symptom	Action/FRU
Parallel/Serial Ports	
Execute "Load BIOS Default Settings" in BIOS Setup to confirm ports presence before diagnosing any parallel/serial ports problems.	
Serial or parallel port loop-back test failed.	<ol style="list-style-type: none"> 1. Make sure that the LPT# or COM# you test is the same as the setting in BIOS Setup. 2. Loop-back. 3. System board.
Printing failed.	<ol style="list-style-type: none"> 1. Ensure the printer driver is properly installed. Refer to the printer service manual. 2. Printer. 3. Printer cable. 4. System board.
Printer problems.	<ol style="list-style-type: none"> 1. Refer to the service manual for the printer.
Keyboard	
Some or all keys on keyboard do not work.	<ol style="list-style-type: none"> 1. Keyboard
Power Supply	
Pressing power switch does not turn off system. (Only unplugging the power cord from electrical outlet can turn off the system.)	<ol style="list-style-type: none"> 1. Ensure the Power Switch < 4 sec. in BIOS Setup of Power Management is not set to Suspend. 2. Power switch cable assembly
Pressing power switch does not turn on the system.	<ol style="list-style-type: none"> 1. Ensure the power override switch (situated at the back of the machine, just above the connector for the power cable) is not set to OFF. 2. Power switch cable assembly.
Executing software shutdown from Windows98 Start menu does not turn off the system. (Only pressing power switch can turn off the system).	<ol style="list-style-type: none"> 1. Load default settings. 2. Reload software from Recovery CD.
No system power, or power supply fan is not running.	<ol style="list-style-type: none"> 1. Power Supply 2. System Board
Other Problems	
Any other problems.	<ol style="list-style-type: none"> 1. Undetermined Problems

Jumper and Connector Information

Acer Power SP Jumpers and Connectors

Refer to the following figure for the location of the jumpers and connectors on the main board:



Connector Description

Connector No.	Description
CN1	RS232
CN2	PS2 KB&MS
CN3	Audio Jack & Game Midiport
CN4	Parallel port & serial port and VGA connector
CN5	Network and USB ports
CN6	CD-in 2
CN7	CD-in 1
CN8	Modem-in
CN9	ATX-12V
CN10	Front audio connector
CN11	AUX-in
CN13	Front USB connector
CN14	Front USB connector
CN15	DIMM1
CN16	DIMM2
CN17	Front panel
CN18	ATX power connector
CN19	IDE2 connector
CN20	External SMI
CN21	Case open
CN22	WOL
CN23	IDE1 connector
CN24	FDD connector
J2	IR connector
PC11	PCI slot 1
PC12	PCI slot 2
PC13	PCI slot 3
BT1	Battery
U3	Audio chipset
U4	LAN chipset
U9	CPU socket
U12	Intel 845 chipset
U13	Intel ICH4 chipset
U15	BIOS chipset
U16	Winbond chipset

Jumper Setting

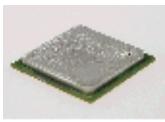
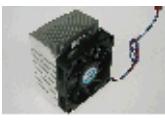
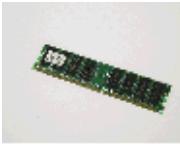
Connector No.	Description
JP1	Keyboard power
	1-2 5V_SYS
	2-3 5V_SB
JP2	Back Fan
JP4	CPU Fan
JP5	LAN disable
	1-2 LAN Disable
	2-3 Normal
JP6	BIOS setting
	1-2 Clear CMOS
	2-3 Default
JP7	Chassis Fan
JP8	BIOS Write Protect
	1-2 Normal
	2-3 BIOS Write Protect

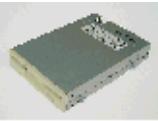
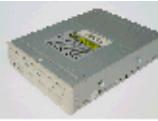
FRU (Field Replaceable Unit) List

This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of Acer Power SP. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

NOTE: Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel (<http://aicsl.acer.com.tw/spl/>, if you do not own a specific account, you can still access the system with guest; guest). For whatever reasons a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

NOTE: To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how best to dispose it, or follow the rules set by your regional Acer office on how to return it.

Picture	Partname	Description	Part No.
CPU/Processor			
	NORTHWOOD 1.8AG SOCKET 478	Northwood 1.8Ghz/512k/400FSB, C1, SL6LA	01.NORTH.18C
	NORTHWOOD 2.0AG SOCKET 478	NORTHWOOD 2.0GHZ/512K/400FSB, C1, SL6GQ	01.NORTH.20C
	NORTHWOOD 2.4G SOCKET 478	NORTHWOOD 2.4GHZ/512K/400FSB, C1, SL6GS	01.NORTH.24C
	NORTHWOOD 2.6G SOCKET 478	NORTHWOOD 2.6GHZ/512K/400FSB, C1, SL6DX	01.NORTH.26C
CPU Fan			
	FOXCONN CPU SINK FOR 2800RPM, P4 SOCKET478 W/ LATH	FOXCONN CPU SINK FOR 2800RPM, P4 SOCKET478 W/ LATH	HI.47809.001
Memory			
	DDR 266 128MB 0.17u CL=2 16M*8*8 /INFINEON		KN.12802.001
	DDR 266 256MB 0.14u CL=2 32M*8*8 /INFINEON		KN.25602.002
	DDR 266 128MB 0.14u CL=2 16M*16*8 /NAYNA		KN.12803.006
	DDR 266 256MB 0.175u CL=2 32M*8*8 /NAYNA		KN.25603.002
	DDR 266 128MB 0.14u CL=2 16M*16*8 /MICRON		KN.12804.001
	DDR 266 256MB 0.15u CL=2 32M*8*8 /MICRON		KN.25604.005
FDD/Floppy Disk Drive			

Picture	Partname	Description	Part No.
	FDD 1.44MB PANASONIC JU-256A048P		KF.25602.002
	FDD 1.44MB CITIZEN Z1DE-04A		TBD
	FDD 1.44MB TEAC FD-235HF-C291		TBD
HDD/Hard Disk Drive			
	HDD 40GB/5400RPM ATA-133/ MAXTOR ARES 2F040L0	HDD 40GB/5400RPM ATA-133/ MAXTOR ARES 2F040L0	KH.34003.004
	HDD WD-400EB-00CPF0/ WD		TBD
CD-ROM/DVD-ROM/CD-RW			
	CD-ROM DRIVE 52X LITEON LTN-526S	CD-ROM DRIVE 52X LITEON LTN-526S	KD.52X09.001
	CD-RW DRIVE 52X/24X/52X LITEON LTR-52246S	CD-RW DRIVE 52X/24X/52X LITEON LTR-52246S	KR.52X01.001
	COMBO DRIVE 42X/24X/48X, 16X, HLDS	COMBO DRIVE 42X/24X/48X, 16X, HLDS	TBD
	DVD-ROM DRIVE 16X PIONEER DVD-120RD	DVD-ROM DRIVE 16X PIONEER DVD-120RD	TBD
Cables			
	IDE HDD CABLE ATA66 40PIN	HDD DATA CABLE	50.PSPVF.001
	IDE CD-ROM CABLE ATA66 40PIN	CDROM DATA CABLE	50.PSPVF.002
	IDE FDD CABLE 34PIN	FDD DATA CABLE	50.PSPVF.003
	AUDIO CABLE 4PIN 2CON	AUDIO CABLE	50.PSPVF.004
	FRONT INTERNAL USB CABLE	USB CABLE	50.PSPVF.005
Main board			

Picture	Partname	Description	Part No.
	FOXCONN M/B F61 (FOXCONN'S FB-611JGL)	P4/845GL/ICH4/2DIMM/3PCI	MB.PSP09.011
Boards/Cards			
	USB/ AUDIO DAUGHTER BOARD FOXCONN	USB/ AUDIO DAUGHTER BOARD FOXCONN	55.PSPVF.001
	MODEM CARD 56K ASKEY 1456VQH75D(INT)		FX.14501.001
	MODEM CARD 56K GVC F-1156I(+)/R12 /GVC		TBD
Power Supply			
	POWER SUPPLY 200W W/ O PFC FSP FSP200-ATV		PY.20008.001
	POWER SUPPLY 20W W/ PFC FSP FSP200-ATV(PF)		PY.20008.002
Case/Cover/Bracket Assembly			
	FRONT BEZEL W/ POWER BUTTON, 5.25" 3.5" EMPTY COVER, USB DOOR		60.PSPVF.001
	POWER BUTTON		42.PSPVF.001
	USB DOOR		42.PSPVF.002
	SIDE DOOR		60.PSPVF.002
	CHASSIS W/ I/O BRACKET		60.PSPVF.003
	I/O BRACKET		33.PSPVF.001
	RETENTION MODULE		42.PSPVF.003
	LED MODULE		42.PSPVF.004
	EMPTY COVER FOR 5.25" DEVICE		42.PSPVF.005

Picture	Partname	Description	Part No.
	EMPTY COVER FOR 3.5" DEVICE		42.PSPVF.006
	HDD BRACKET		33.PSPVF.002
Peripheral			
	KB, CHINESE , 104KEYS, GIFT BOX W/PALM KBP2971 PS/2		KB.KBP03.010
	MOUSE PS2, 2BUTTON+WHEEL LOGITECH S69		90.00026.007
	SPEAKER		23.PSPVF.001
Screws			
	M/B, USB BOARD SCREW		86.PSPVF.001
	FDD, CD-ROM SCREW		86.PSPVF.002
	CHASSIS SCREW		86.PSPVF.003
	SPS SCREW		86.PSPVF.004